

Supplemental Table SSA

G. fortis Multiple-Window Sperm DMR Gene Associations

DMR Name	Gene Symbol	entrezgene	Chr	start_position	Ensembl #	Gene Description	Classification Category
DMR1:89900301	ENO2	100231650	1	89898643	ENSTGUG000000013292	enolase 2 (gamma - neuronal)	Metabolism
DMR1:89900301	LRR23	NA	1	89846656	ENSTGUG000000018128	leucine rich repeat containing 23	Unknown
DMR1A:9608801	HGF	NA	1A	9584500	ENSTGUG000000002584	hepatocyte growth factor (hepapoietin A; scatter factor)	Growth Factor
DMR1A:33384201	MSRB3	100222850	1A	33347429	ENSTGUG000000006603	methionine sulfoxide reductase B3	Metabolism
DMR2:1016201		NA	2	992603	ENSTGUG000000000185	Uncharacterized protein	Unknown
DMR2:1016201	CCDC12	100228451	2	1006110	ENSTGUG000000000186	coiled-coil domain containing 12	Transcription
DMR2:11077401	NA	100232012	2	11020995	ENSTGUG000000000783	Uncharacterized protein	Unknown
DMR2:57355101	RPL15	100190572	2	57352106	ENSTGUG0000000003325	ribosomal protein L15	Translation
DMR2:152511201	NA	NA	2	152312910	ENSTGUG000000012639	Uncharacterized protein	Unknown
DMR2:155551401	RHPN1	100230992	2	155541405	ENSTGUG000000012739	rhophilin - Rho GTPase binding protein 1	Signaling
DMR3:19616201	GALNT14	100229575	3	19573963	ENSTGUG000000004629	polypeptide N-acetylgalactosaminyltransferase 14	Golgi
DMR3:22144501	NRXN1	100228660	3	22119248	ENSTGUG000000005731	neurexin 1	Receptor
DMR3:82421001	HTR1B	751996	3	82421033	ENSTGUG000000012613	5-hydroxytryptamine (serotonin) receptor 1B - G protein-coupled	Receptor
DMR3:110673201	PAQR8	100220736	3	110674600	ENSTGUG000000013277	progesterone and adipoQ receptor family member VIII	Receptor
DMR3:111805401	MSRA	NA	3	111667595	ENSTGUG000000013321	methionine sulfoxide reductase A	Metabolism
DMR3:112515501	FZD3	NA	3	112498936	ENSTGUG000000013332	frizzled class receptor 3	Receptor
DMR4:6462901	FAT4	100222872	4	6366597	ENSTGUG000000002042	FAT atypical cadherin 4	Receptor
DMR4:10513201	LRBA	100226445	4	10348610	ENSTGUG000000002514	LPS-responsive vesicle trafficking - beach and anchor containing	Transport
DMR4:58976401	JAKMIP1	101233368	4	58954507	ENSTGUG000000010025	janus kinase and microtubule interacting protein 1	Signaling
DMR4:67704101	CTNNA2	100221417	4	67538300	ENSTGUG000000010908	catenin (cadherin-associated protein) - alpha 2	Signaling
DMR4:67704101	LRRTM1	100218569	4	67703594	ENSTGUG000000010929	leucine rich repeat transmembrane neuronal 1	Receptor
DMR4A:4743001	RPS6KA6	100217905	4A	4707076	ENSTGUG000000002510	ribosomal protein S6 kinase - 90kDa - polypeptide 6	Signaling
DMR4A:19342701	CNGA2	NA	4A	19342297	ENSTGUG000000006426	cyclic nucleotide gated channel alpha 2]	Transport
DMR5:6667801	TMEM132A	NA	5	6667834	ENSTGUG000000006351	transmembrane protein 132A	Unknown
DMR5:6667801	CD6	NA	5	6674726	ENSTGUG000000006362	CD6 molecule	Receptor
DMR5:10950801	SOX6	100225773	5	10806780	ENSTGUG000000008522	SRY (sex determining region Y)-box 6	Transcription
DMR5:14025601	SYT8	100232540	5	14010649	ENSTGUG000000009405	synaptotagmin VIII	Transport
DMR6:3861701	SGMS1	100229900	6	3861953	ENSTGUG000000005065	sphingomyelin synthase 1	Metabolism
DMR6:21155001	NA	NA	6	21137374	ENSTGUG000000009180	Uncharacterized protein	Unknown
DMR7:1620001	HDAC4	100222021	7	1612998	ENSTGUG000000003197	histone deacetylase 4	Epigenetic
DMR8:24996701	NFIA	100221182	8	24945852	ENSTGUG000000009745	nuclear factor I/A	Transcription
DMR9:23196601	NA	NA	9	23120500	ENSTGUG000000011013	Uncharacterized protein	Unknown
DMR10:2121101	PLEC	NA	10	2115301	ENSTGUG000000004052	plectin	Cytoskeleton
DMR10:14143801	NA	100217734	10	14143898	ENSTGUG000000008405	Uncharacterized protein	Unknown
DMR10:14466301	SV2B	100222606	10	14442653	ENSTGUG000000008436	synaptic vesicle glycoprotein 2B	Protein Interaction
DMR10:17182001		NA	10	17184323	ENSTGUG000000008635	Uncharacterized protein	Unknown
DMR10:17182001	IGF1R	100227374	10	17184337	ENSTGUG000000008636	insulin-like growth factor 1 receptor	Receptor
DMR11:16380101	NA	NA	11	16377691	ENSTGUG000000009150	Uncharacterized protein	Unknown
DMR12:4785401	MST1R	NA	12	4785348	ENSTGUG000000005035	macrophage stimulating 1 receptor	Receptor
DMR12:5901001	NA	NA	12	5885739	ENSTGUG000000005918	Uncharacterized protein	Unknown
DMR13:11920001	GABRB2	100227722	13	11919977	ENSTGUG000000001428	gamma-aminobutyric acid (GABA) A receptor - beta 2	Receptor
DMR14:1181901	RAB40C	NA	14	1176454	ENSTGUG000000003408	RAB40C - member RAS oncogene family	Signaling
DMR14:3090701	RHBDF1	100230264	14	3088544	ENSTGUG000000004429	rhomboid 5 homolog 1 (Drosophila)	Protease
DMR15:2627801	NA	NA	15	2627887	ENSTGUG000000005468	Uncharacterized protein	Unknown
DMR15:2915401	IFT81	100224782	15	2910879	ENSTGUG000000005815	intraflagellar transport 81	Unknown
DMR17:3431501	NA	NA	17	3419406	ENSTGUG000000003291	Uncharacterized protein	Unknown
DMR18:991001		100190374	18	897346	ENSTGUG000000002914	Uncharacterized protein	Unknown
DMR18:991001	BTBD17	100225927	18	991544	ENSTGUG000000002937	BTB (POZ) domain containing 17	Unknown
DMR18:1081001	SLC38A10	NA	18	1064419	ENSTGUG000000002960	solute carrier family 38 - member 10	Transport
DMR18:1084101	SLC38A10	NA	18	1064419	ENSTGUG000000002960	solute carrier family 38 - member 10	Transport
DMR19:514001	RNF43	NA	19	494931	ENSTGUG000000003301	ring finger protein 43	Unknown
DMR19:5685501	RFFL	101233851	19	5681157	ENSTGUG000000004921	ring finger and FYVE-like domain containing E3 ubiquitin protein ligase	Proteolysis

DMR20:553601	RALGAPB	100224256	20	523559	ENSTGUG00000003151	Ral GTPase activating protein - beta subunit (non-catalytic)	Signaling
DMR20:1139801	NA	100230956	20	1136740	ENSTGUG00000003444	Uncharacterized protein	Unknown
DMR20:13641501	NA	NA	20	13633879	ENSTGUG00000008516	Uncharacterized protein	Unknown
DMR21:3356301	PLCH2	NA	21	3357561	ENSTGUG00000002915	phospholipase C - eta 2	Signaling
DMR23:4735301	EPHA10	NA	23	4734790	ENSTGUG00000001509	EPH receptor A10	Receptor
DMR25:797501	NA	100219169	25	797650	ENSTGUG00000004304	Uncharacterized protein	Unknown
DMR25:797501	NA	100222004	25	797650	ENSTGUG00000004304	Uncharacterized protein	Unknown
DMR27:383501	DDX42	100217897	27	383542	ENSTGUG00000001931	DEAD (Asp-Glu-Ala-Asp) box helicase 42	Translation
DMR27:4437801	NA	NA	27	4277732	ENSTGUG00000003306	Uncharacterized protein	Unknown
DMR27:4437801	NA	NA	27	4317779	ENSTGUG00000003320	Uncharacterized protein	Unknown
DMR28:4853401	KLHL26	100230034	28	4852037	ENSTGUG00000001064	kelch-like family member 26	Unknown
DMRUn:38440401	ARHGAP39	100223465	Un	38437090	ENSTGUG000000015026	Rho GTPase activating protein 39	Signaling
DMRUn:70786601	SYCP1	NA	Un	70782305	ENSTGUG000000015209	synaptonemal complex protein 1	Cell Cycle
DMRUn:70786601		NA	Un	70765920	ENSTGUG000000015195	Uncharacterized protein	Unknown
DMRUn:70799501	SYCP1	NA	Un	70782305	ENSTGUG000000015209	synaptonemal complex protein 1	Cell Cycle
DMRUn:70799501		NA	Un	70765920	ENSTGUG000000015195	Uncharacterized protein	Unknown
DMRUn:116431501	DNMT1	NA	Un	116426172	ENSTGUG000000013708	DNA (cytosine-5-)-methyltransferase 1	Epigenetic
DMRUn:116729701	DOCK7	NA	Un	116727282	ENSTGUG000000013835	Uncharacterized protein	Signaling
DMRUn:132241501	USP21	100231115	Un	132242124	ENSTGUG000000016056	ubiquitin specific peptidase 21	Proteolysis
DMRZ:38519001		NA	Z	38512069	ENSTGUG000000001724	Uncharacterized protein	Unknown
DMRZ:38519001	RPP25	NA	Z	38519149	ENSTGUG000000001727	ribonuclease P/MRP 25kDa subunit	Unknown

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G. fortis Multiple-Window Erythrocyte DMR Gene Associations

DMR Name	Gene Symbol	entrezgene	Chr	start_position	Ensemb #	Gene Description	Classification Category
DMR1:2682401	NA	NA	1	2421764	ENSTGUG000000005151	Uncharacterized protein	Unknown
DMR1:5421101	CXorf36	100227072	1	5410116	ENSTGUG000000006067	chromosome X open reading frame 36	Unknown
DMR1:17714201	GEMIN8	NA	1	17700218	ENSTGUG000000008162	gem (nuclear organelle) associated protein 8	Translation
DMR1:52621901	NA	100225399	1	52426258	ENSTGUG000000011857	Uncharacterized protein	Unknown
DMR1:59413201	NA	100219571	1	59285996	ENSTGUG000000012398	Uncharacterized protein	Unknown
DMR1:68474101	PIBF1	100218618	1	68431741	ENSTGUG000000012511	progesterone immunomodulatory binding factor 1	Immune
DMR1:83012401	NA	100228758	1	82998831	ENSTGUG000000012920	Malic enzyme	Metabolism
DMR1:93094801	NA	100219809	1	93077213	ENSTGUG000000013396	Uncharacterized protein	Unknown
DMR1A:14851501	CPNE8	NA	1A	14799211	ENSTGUG000000003596	copine VIII	Protein Interaction
DMR1A:46028501	IKBIP	NA	1A	46028147	ENSTGUG000000008755	IKBKB interacting protein	Protein Interaction
DMR1A:47095601	NA	100232057	1A	47068604	ENSTGUG000000009105	Uncharacterized protein	Unknown
DMR1A:70257101	MICAL3	NA	1A	70210553	ENSTGUG000000012499	microtubule associated monooxygenase - calponin and LIM domain containing 3	Unknown
DMR2:44270401	FARS2	NA	2	44124991	ENSTGUG000000002269	phenylalanyl-tRNA synthetase 2 - mitochondrial	Translation
DMR2:148037901	NA	NA	2	148037992	ENSTGUG000000012535	Uncharacterized protein	Unknown
DMR3:35391201	CRIM1	NA	3	35362730	ENSTGUG000000008626	cysteine rich transmembrane BMP regulator 1 (chordin-like)	Development
DMR5:2884401	ELP4	NA	5	2764406	ENSTGUG000000004816	elongator acetyltransferase complex subunit 4	Transcription
DMR5:17085201	NA	NA	5	17073049	ENSTGUG000000010089	Amino acid transporter	Transport
DMR6:4069801	NA	NA	6	3961424	ENSTGUG000000005123	Uncharacterized protein	Unknown
DMR6:4069801	NA	NA	6	3970891	ENSTGUG000000005129	Uncharacterized protein	Unknown
DMR6:15841201	GBF1	100227027	6	15830427	ENSTGUG000000007414	golgi brefeldin A resistant guanine nucleotide exchange factor 1	Signaling
DMR6:22127301	FBXW4	100229466	6	21890389	ENSTGUG000000009903	F-box and WD repeat domain containing 4	Unknown
DMR6:22127301	FGF8	NA	6	22049471	ENSTGUG000000009956	fibroblast growth factor 8 (androgen-induced)	Growth Factor
DMR6:24244501	SORCS3	100229522	6	24203189	ENSTGUG000000010448	sortilin-related VPS10 domain containing receptor 3	Receptor
DMR7:7103301	MRAS	100225544	7	7083869	ENSTGUG000000004727	muscle RAS oncogene homolog	Signaling
DMR8:9281501	PTBP2	100219685	8	9249676	ENSTGUG000000005558	polypyrimidine tract binding protein 2	Translation
DMR12:10036401	ABTB1	100223102	12	10018786	ENSTGUG000000008002	ankyrin repeat and BTB (POZ) domain containing 1	Unknown
DMR12:20282601	ITPR1	NA	12	20139304	ENSTGUG000000010241	inositol 1 -4 -5-trisphosphate receptor - type 1	Receptor
DMR13:246201	STK32A	NA	13	246166	ENSTGUG000000000062	serine/threonine kinase 32A	Signaling
DMR13:11691501	NA	100227780	13	11677740	ENSTGUG000000001419	Phospholipid-transporting ATPase	Transport
DMR14:10140501	CACNA1H	NA	14	10031279	ENSTGUG000000006881	calcium channel - voltage-dependent - T type - alpha 1H subunit	Transport
DMR14:10140501	B9D1	NA	14	10093952	ENSTGUG000000007019	B9 protein domain 1 [	Extracellular Matrix
DMR15:5515601	MN1	100223802	15	5486760	ENSTGUG000000007793	meningioma (disrupted in balanced translocation) 1	Unknown
DMR15:12868101	NA	NA	15	12853825	ENSTGUG000000010495	Uncharacterized protein	Unknown
DMR15:14137901	AIFM3	100227335	15	14135686	ENSTGUG000000010632	apoptosis-inducing factor - mitochondrion-associated - 3	Apoptosis
DMR18:7751401	ST6GALNAC2	100224588	18	7751042	ENSTGUG000000007819	ST6 (alpha-N-acetyl-neuraminyl-2 -3-beta-galactosyl-1 -3)-N-acetylgalactosaminide alpha-2 -6-sialyltransferase 2	Gogli
DMR19:9135801	NA	NA	19	9132699	ENSTGUG000000007767	Uncharacterized protein	Unknown
DMR20:15138501	KCNB1	NA	20	15135879	ENSTGUG000000008781	potassium channel - voltage gated Shab related subfamily B - member 1	Transport
DMR21:4415901	ACAP3	NA	21	4404694	ENSTGUG000000003217	ArfGAP with coiled-coil - ankyrin repeat and PH domains 3	Signaling
DMR26:3225201	RAP1A	100151697	26	3158273	ENSTGUG000000001456	Taeniopygia guttata RAP1A - member of RAS oncogene family (RAP1A) - mRNA.	Signaling
DMRUn:115914401	NA	NA	Un	115904314	ENSTGUG000000016835	Uncharacterized protein	Unknown
DMRUn:167343801	NA	NA	Un	167343490	ENSTGUG000000016875	Uncharacterized protein	Unknown
DMR2:45691301	ISL1	100231918	Z	45690056	ENSTGUG000000002375	ISL LIM homeobox 1	Transcription
DMR2:70647701	EDIL3	100232785	Z	70483471	ENSTGUG000000006826	EGF-like repeats and discoidin I-like domains 3	Development

Supplemental Table SSC			G. fuliginosa Multiple-Window Sperm DMR Gene Associations				
DMR Name	Gene Symbol	entrezgene	Chr	start_position	Ensembl #	Gene Description	Classification Category
DMR1:10654201	IL1RAPL1	100219378	1	10652160	ENSTGUG000000007085	interleukin 1 receptor accessory protein-like 1	Receptor
DMR1:80766701	FAT3	100223418	1	80634098	ENSTGUG000000012873	FAT atypical cadherin 3	Extracellular Matrix (ECM)
DMR1A:11577701	PTPN12	NA	1A	11558479	ENSTGUG000000002717	protein tyrosine phosphatase - non-receptor type 12	Signaling
DMR1A:24114101	WNT2	100221216	1A	24114687	ENSTGUG000000005016	wingless-type MMTV integration site family member 2	Growth Factor
DMR1A:27064701	IMMP2L	100226070	1A	26702220	ENSTGUG000000005588	IMP2 inner mitochondrial membrane peptidase-like (S. cerevisiae)	Proteolysis
DMR1A:29521501	TMEM117	100228057	1A	29424286	ENSTGUG000000005962	transmembrane protein 117	Unknown
DMR1A:37122201	NA	NA	1A	37109977	ENSTGUG000000007370	Uncharacterized protein	Unknown
DMR1A:48389101	TTC26	100225372	1A	48361671	ENSTGUG000000009550	tetratricopeptide repeat domain 26	Unknown
DMR1A:59545101	KDM7A	100223451	1A	59545795	ENSTGUG000000011686	lysine (K)-specific demethylase 7A	Epigenetic
DMR1A:61248301	C2CD5	NA	1A	61201716	ENSTGUG000000011766	C2 calcium-dependent domain containing 5	Unknown
DMR2:7094701	GALNT11	100231024	2	7087083	ENSTGUG000000000608	polypeptide N-acetylgalactosaminyltransferase 11	Gogli
DMR2:19980701	NA	NA	2	19983441	ENSTGUG000000001217	Uncharacterized protein	Unknown
DMR2:21459501	NA	NA	2	21459108	ENSTGUG000000001259	Uncharacterized protein	Unknown
DMR2:57223201	NA	NA	2	57030969	ENSTGUG000000003303	Uncharacterized protein	Unknown
DMR2:60537101	OSBPL10	100222583	2	60501996	ENSTGUG000000003656	oxysterol binding protein-like 10	Binding Protein
DMR2:94031401	NA	NA	2	93945597	ENSTGUG000000008651	Uncharacterized protein	Unknown
DMR2:118325701	TOX	100232611	2	118235600	ENSTGUG000000011174	thymocyte selection-associated high mobility group box	Immune
DMR2:134150201	NIPAL2	NA	2	134144014	ENSTGUG000000012018	NIPA-like domain containing 2	Development
DMR2:144740601	FBXO32	100224944	2	144729030	ENSTGUG000000012442	F-box protein 32	Transcription
DMR3:14233101	UBR2	100225781	3	14191156	ENSTGUG000000003261	ubiquitin protein ligase E3 component n-recogin 2	Proteolysis
DMR3:20417201	LCLAT1	NA	3	20382321	ENSTGUG000000005391	lysocardiolipin acyltransferase 1	Metabolism
DMR3:37439001	PARK2	100221229	3	37384893	ENSTGUG000000009367	parkin RBR E3 ubiquitin protein ligase	Proteolysis
DMR3:41905401	DLL1	100230776	3	41897719	ENSTGUG000000009780	delta-like 1 (Drosophila)	Receptor
DMR3:43634901	SIPA1L2	100228885	3	43583239	ENSTGUG000000010103	signal-induced proliferation-associated 1 like 2	Signaling
DMR3:53617101	SNX9	100225096	3	53592751	ENSTGUG000000011096	sorting nexin 9	Transport
DMR3:78687001	AKIRIN2	NA	3	78683482	ENSTGUG000000012437	akirin 2	Unknown
DMR3:85093801	FAM135A	100227848	3	85067721	ENSTGUG000000012721	family with sequence similarity 135 - member A	Unknown
DMR3:89692801	BMP5	100232671	3	89677349	ENSTGUG000000012830	bone morphogenetic protein 5	Growth Factor
DMR3:92570201	CSMD1	100230644	3	92239007	ENSTGUG000000012896	CUB and Sushi multiple domains 1	Signaling
DMR3:95496201	PXDN	100230769	3	95422869	ENSTGUG000000012962	peroxidasin	Metabolism
DMR4:30010001	RAPGEF2	100224541	4	30007643	ENSTGUG000000005715	Rap guanine nucleotide exchange factor (GEF) 2	Signaling
DMR4A:4645401	HDX	100223075	4A	4645348	ENSTGUG000000002499	highly divergent homeobox	Unknown
DMR5:17116201	NA	NA	5	17093478	ENSTGUG000000010095	Amino acid transporter	Transport
DMR5:20105501	EXT2	100231605	5	20077856	ENSTGUG000000010249	exostosin glycosyltransferase 2	Gogli
DMR5:22209801	AMBRA1	NA	5	22154488	ENSTGUG000000010628	autophagy/beclin-1 regulator 1	Apoptosis
DMR5:25054401	UBR1	NA	5	25031883	ENSTGUG000000011165	ubiquitin protein ligase E3 component n-recogin 1	Proteolysis
DMR5:29800501	RYR3	100219104	5	29645499	ENSTGUG000000011653	ryanodine receptor 3	Receptor
DMR6:5313901	C10orf107	NA	6	5284088	ENSTGUG000000005288	chromosome 10 open reading frame 107	Unknown
DMR6:28395601	NA	NA	6	28226525	ENSTGUG000000010983	Uncharacterized protein	Unknown
DMR7:2821801	IQCA1	NA	7	2756467	ENSTGUG000000003628	IQ motif containing with AAA domain 1	Unknown
DMR7:27843701	ZNF804A	100221331	7	27813179	ENSTGUG000000011155	zinc finger protein 804A	Unknown
DMR7:32399701	NA	NA	7	32359427	ENSTGUG000000011682	Uncharacterized protein	Unknown
DMR8:25817401	NA	100218377	8	25813953	ENSTGUG000000009906	Uncharacterized protein	Unknown
DMR9:15033901	MB21D2	100221081	9	15029216	ENSTGUG000000009252	Mab-21 domain containing 2	Unknown
DMR10:8862401	TMOD2	100225462	10	8857237	ENSTGUG000000006888	tropomodulin 2 (neuronal)	Cytoskeleton
DMR11:17270401	CDH8	NA	11	17141697	ENSTGUG000000009281	cadherin 8 - type 2	Extracellular Matrix (ECM)
DMR14:15125101	NA	100220325	14	15124742	ENSTGUG000000008831	Ubiquitin carboxyl-terminal hydrolase	Proteolysis
DMR15:8420501	TOP3B	NA	15	8411299	ENSTGUG000000008644	topoisomerase (DNA) III beta	Transcription

DMR19:8815901	GDPD1	100224315	19	8812582	ENSTGUG00000007493	glycerophosphodiester phosphodiesterase domain containing 1	Metabolism
DMR26:1999201	KLHL12	NA	26	1977574	ENSTGUG00000001234	kelch-like family member 12	Cytoskeleton
DMRUn:152715201	NA	NA	Un	152582138	ENSTGUG000000018382	Uncharacterized protein	Unknown
DMRZ:58234701	DENND4C	100230179	Z	58237261	ENSTGUG00000004350	DENN/MADD domain containing 4C	Unknown

Supplemental Table S5D

G. fuliginosa Multiple-Window Erythrocyte DMR Gene Associations

DMR Name	Gene Symbol	entrezgene	Chr	start_position	ensembl_gene_id	Gene Description	Classification Category
DMR1:15514901	NA	NA	1	15501404	ENSTGUG00000007781	Uncharacterized protein	Unknown
DMR1:30194301	RNF149	100221793	1	30188297	ENSTGUG00000009945	ring finger protein 149	Proteolysis
DMR1:49804201	NA	NA	1	49704389	ENSTGUG00000011664	Uncharacterized protein	Unknown
DMR1:69585701	LMO7	NA	1	69547644	ENSTGUG00000012539	LIM domain 7	Cytoskeleton
DMR1:79976701	NA	100229192	1	79958222	ENSTGUG00000012829	Uncharacterized protein	Unknown
DMR1:80849001	FAT3	100223418	1	80634098	ENSTGUG00000012873	FAT atypical cadherin 3	ECM
DMR1:94822701	LSAMP	NA	1	94669017	ENSTGUG00000013402	limbic system-associated membrane protein	ECM
DMR1A:536501	NET1	100228711	1A	528641	ENSTGUG00000001945	neuroepithelial cell transforming 1	Signaling
DMR1A:3291201	SFMBT2	100218182	1A	3209575	ENSTGUG00000002052	Scm-like with four mbt domains 2	Epigenetic
DMR1A:25828501	PPP1R3A	NA	1A	25815970	ENSTGUG00000005399	protein phosphatase 1 - regulatory subunit 3A	Signaling
DMR1A:38048601	NAV3	100229468	1A	38040492	ENSTGUG00000007519	neuron navigator 3	Development
DMR1A:50021401	CACNA1I	NA	1A	50003360	ENSTGUG00000010198	calcium channel - voltage-dependent - T type - alpha 1I subunit	Transport
DMR1A:60465701	SOX5	100220574	1A	60317901	ENSTGUG00000011749	SRY (sex determining region Y)-box 5	Transcription
DMR1A:67777301	PLEKHA5	NA	1A	67772119	ENSTGUG00000012354	pleckstrin homology domain containing - family A member 5	Signaling
DMR2:21606201	NA	NA	2	21604293	ENSTGUG00000001271	Uncharacterized protein	Unknown
DMR2:66551001	EEPD1	NA	2	66510181	ENSTGUG00000005472	endonuclease/exonuclease/phosphatase family domain containing 1	Signaling
DMR2:84797701	MYH6	NA	2	84795322	ENSTGUG00000007833	myosin - heavy chain 6 - cardiac muscle - alpha	Cytoskeleton
DMR2:88439501	FHOD3	NA	2	88300265	ENSTGUG00000007999	formin homology 2 domain containing 3	Unknown
DMR2:88582201	C18orf21	100218608	2	88579126	ENSTGUG00000008036	chromosome 18 open reading frame 21	Unknown
DMR2:102792501	GNAL	100219216	2	102746499	ENSTGUG00000009707	guanine nucleotide binding protein (G protein) - alpha activating activity polypeptide - olfactory type	Signaling
DMR2:109112201	OSBPL1A	100223128	2	109039838	ENSTGUG00000010525	oxysterol binding protein-like 1A	Binding Protein
DMR2:110670701	CDH2	100229697	2	110571137	ENSTGUG00000010620	cadherin 2 - type 1 - N-cadherin (neuronal)	ECM
DMR2:121488201	NA	100231693	2	121486449	ENSTGUG00000011308	Uncharacterized protein	Unknown
DMR2:132400801	CDH17	NA	2	132378941	ENSTGUG00000011871	cadherin 17 - LI cadherin (liver-intestine)	ECM
DMR2:138528101	NA	100223993	2	138507126	ENSTGUG00000012216	Uncharacterized protein	Unknown
DMR2:141908201	EIF3H	100190645	2	141896849	ENSTGUG00000012302	eukaryotic translation initiation factor 3 - subunit H	Translation
DMR2:151126601	FAM135B	100227463	2	151114975	ENSTGUG00000012621	family with sequence similarity 135 - member B	Unknown
DMR2:151971901	KCNK9	100230281	2	151900356	ENSTGUG00000012636	potassium channel - two pore domain subfamily K - member 9	Transport
DMR2:155785401	ZC3H3	NA	2	155762072	ENSTGUG00000012743	zinc finger CCCH-type containing 3	Translation
DMR3:5223801	TASP1	NA	3	5146840	ENSTGUG00000002456	taspase - threonine aspartase - 1	Proteolysis
DMR3:21546801	FOXN3	NA	3	21548956	ENSTGUG00000005623	forkhead box N3	Unknown
DMR3:47496101	UST	100218364	3	47457997	ENSTGUG00000010673	uronyl-2-sulfotransferase	Metabolism
DMR3:54732001	NOX3	100228883	3	54716130	ENSTGUG00000011124	NADPH oxidase 3	Metabolism
DMR3:70631201	PRDM1	100219562	3	70624594	ENSTGUG00000012204	PR domain containing 1 - with ZNF domain	Transcription
DMR3:89074901	PRIM2	100228796	3	88989762	ENSTGUG00000012790	primase - DNA - polypeptide 2 (58kDa)	Metabolism
DMR3:89714201	BMP5	100232671	3	89677349	ENSTGUG00000012830	bone morphogenetic protein 5	Growth Factor
DMR3:90528101	GCLC	100218278	3	90521029	ENSTGUG00000012854	glutamate-cysteine ligase - catalytic subunit	Metabolism
DMR3:110489001	NA	NA	3	110359582	ENSTGUG00000013268	Uncharacterized protein	Unknown
DMR4:5567801	SPATA5	100221993	4	5549460	ENSTGUG00000002029	spermatogenesis associated 5	Development
DMR4:6440901	FAT4	100222872	4	6366597	ENSTGUG00000002042	FAT atypical cadherin 4	Signaling
DMR4:11522601	ARHGAP10	100227425	4	11426980	ENSTGUG00000002594	Rho GTPase activating protein 10	Signaling
DMR4:23287201	LEF1	100228376	4	23247602	ENSTGUG00000004013	lymphoid enhancer-binding factor 1	Transcription
DMR4:30011901	RAPGEF2	100224541	4	30007643	ENSTGUG00000005715	Rap guanine nucleotide exchange factor (GEF) 2	Signaling
DMR4:38514801	ENPP6	100225148	4	38502012	ENSTGUG00000006653	ectonucleotide pyrophosphatase/phosphodiesterase 6	Signaling

DMR4:47123001	NA	100225702	4	47122672	ENSTGUG00000008603	Uncharacterized protein	Unknown
DMR4A:9445601	MCTS1	100190027	4A	9359760	ENSTGUG00000003338	malignant T cell amplified sequence 1	Receptor
DMR4A:9445601	AKAP14	100218817	4A	9443728	ENSTGUG00000003440	A kinase (PRKA) anchor protein 14	Signaling
DMR5:143201	NELL1	100228095	5	75638	ENSTGUG00000004458	NEL-like 1 (chicken) [Source:HGNC Symbol;Acc:HGNC:7750]	Development
DMR5:7862001	NA	100224878	5	7862469	ENSTGUG00000007330	Uncharacterized protein	Unknown
DMR5:15807101	RPLP2	100221892	5	15762188	ENSTGUG00000009801	ribosomal protein - large - P2	Translation
DMR5:23337901	INO80	100227760	5	23289026	ENSTGUG00000010786	INO80 complex subunit	Transcription
DMR5:28566801	GPHN	NA	5	28455478	ENSTGUG00000011577	gephyrin	Receptor
DMR5:40106301	NA	NA	5	39895138	ENSTGUG00000012355	Uncharacterized protein	Unknown
DMR5:44895801	TTC7B	NA	5	44815864	ENSTGUG00000012501	tetratricopeptide repeat domain 7B	Metabolism
DMR5:48919901	NA	NA	5	48861713	ENSTGUG00000012709	Uncharacterized protein	Unknown
DMR5:53490201	CEP170B	NA	5	53432980	ENSTGUG00000012907	centrosomal protein 170B	Unknown
DMR5:54589001	BRF1	NA	5	54573873	ENSTGUG00000012926	BRF1 - RNA polymerase III transcription initiation factor 90 kDa subunit	Transcription
DMR5:54610101	BRF1	NA	5	54573873	ENSTGUG00000012926	BRF1 - RNA polymerase III transcription initiation factor 90 kDa subunit	Transcription
DMR5:58386501	TMEM260	100230578	5	58386478	ENSTGUG00000013057	transmembrane protein 260	Unknown
DMR6:25933601	NA	NA	6	25926844	ENSTGUG00000010665	Uncharacterized protein	Unknown
DMR7:10812401	SLC4A3	100223699	7	10813277	ENSTGUG00000006252	solute carrier family 4 (anion exchanger) - member 3	Transport
DMR7:11920001	IFIH1	NA	7	11915850	ENSTGUG00000006914	interferon induced with helicase C domain 1	Transcription
DMR7:26104901	ORMDL1	NA	7	26101329	ENSTGUG00000010880	ORMDL sphingolipid biosynthesis regulator 1	Metabolism
DMR8:4542101	CRB1	100223846	8	4494806	ENSTGUG00000004300	crumbs family member 1 - photoreceptor morphogenesis associated	Development
DMR8:10439801	RPL5	100190411	8	10438158	ENSTGUG00000005988	ribosomal protein L5	Translation
DMR8:10439801	SNORD21	NA	8	10440268	ENSTGUG00000018060	Small nucleolar RNA SNORD21	Unknown
DMR8:26306401	AK4	NA	8	26304563	ENSTGUG00000010010	adenylate kinase 4	Signaling
DMR9:5238901	NA	100221456	9	5228092	ENSTGUG00000006742	Uncharacterized protein	Unknown
DMR9:7457601	SPSB4	100225409	9	7410458	ENSTGUG00000007647	splA/ryanodine receptor domain and SOCS box containing 4	Unknown
DMR9:20093101	MFN1	100220202	9	20085820	ENSTGUG00000010693	mitofusin 1	Signaling
DMR9:25731701	MFSD1	100222737	9	25730655	ENSTGUG00000011199	major facilitator superfamily domain containing 1	Transport
DMR9:26210101	NA	NA	9	26202250	ENSTGUG00000011240	Uncharacterized protein	Unknown
DMR9:27015201	PFN2	NA	9	27012835	ENSTGUG00000011405	profilin 2	Cytoskeleton
DMR10:7027301	CGNL1	NA	10	6994325	ENSTGUG00000006242	cingulin-like 1	Cytoskeleton
DMR10:13256501	DET1	100217762	10	13250087	ENSTGUG00000008339	de-etiolated homolog 1 (Arabidopsis)	Proteolysis
DMR10:17985101	ALDH1A3	100231202	10	17976236	ENSTGUG00000008854	aldehyde dehydrogenase 1 family - member A3	Metabolism
DMR10:18730201	DENND4A	100229269	10	18728541	ENSTGUG00000009220	DENN/MADD domain containing 4A	Unknown
DMR11:10915301	BANP	NA	11	10820357	ENSTGUG00000007690	BTG3 associated nuclear protein	Transcription
DMR11:19202501	NA	NA	11	19195065	ENSTGUG00000009520	Uncharacterized protein	Unknown
DMR12:424701	NA	NA	12	347145	ENSTGUG00000003635	Uncharacterized protein	Unknown
DMR12:16143901	FAM19A1	100228414	12	16075500	ENSTGUG00000009669	family with sequence similarity 19 (chemokine (C-C motif)-like) - member A1	Cytokine
DMR13:4235701	EBF1	100228980	13	4019793	ENSTGUG00000000593	early B-cell factor 1	Transcription
DMR14:1865701	RAB11FIP3	NA	14	1810964	ENSTGUG00000003751	RAB11 family interacting protein 3 (class II)	Signaling
DMR14:7746201	MYH11	100230210	14	7725174	ENSTGUG00000005378	myosin - heavy chain 11 - smooth muscle	Cytoskeleton
DMR15:11293101	EIF4ENIF1	NA	15	11294615	ENSTGUG00000009790	eukaryotic translation initiation factor 4E nuclear import factor 1	Translation
DMR17:6864401	PRRC2B	NA	17	6861636	ENSTGUG00000004903	proline-rich coiled-coil 2B	Unknown
DMR17:11018301	PBX3	NA	17	10940614	ENSTGUG00000007364	pre-B-cell leukemia homeobox 3	Transcription
DMR18:1033201	NPLOC4	100190374	18	897346	ENSTGUG00000002914	Uncharacterized protein	Unknown
DMR18:1033201	NPLOC4	NA	18	1020952	ENSTGUG00000002958	nuclear protein localization 4 homolog (S. cerevisiae)	Proteolysis
DMR18:8856901	MRPS7	NA	18	8759169	ENSTGUG00000008655	mitochondrial ribosomal protein S7	Translation
DMR19:10177801	ACACA	NA	19	10154218	ENSTGUG00000008074	acetyl-CoA carboxylase alpha	Metabolism
DMR20:12291301	NA	100220955	20	12289073	ENSTGUG00000008146	Uncharacterized protein	Unknown

DMR20:12433001	VAPB	NA	20	12407416	ENSTGUG00000008176	VAMP (vesicle-associated membrane protein)-associated protein B and C	Transport
DMR20:13029701	BMP7	NA	20	12994772	ENSTGUG00000008348	bone morphogenetic protein 7	Growth Factor
DMR21:3618001	SKI	NA	21	3567060	ENSTGUG00000002944	SKI proto-oncogene	Development
DMR21:3922101	NA	NA	21	3829014	ENSTGUG00000002984	Uncharacterized protein	Unknown
DMR21:4941801	UBE4B	NA	21	4917870	ENSTGUG00000003533	ubiquitination factor E4B	Proteolysis
DMR21:5494101	RERE	NA	21	5384095	ENSTGUG00000003924	arginine-glutamic acid dipeptide (RE) repeats	Unknown
DMR22:3011601	NA	NA	22	3005531	ENSTGUG00000005141	Uncharacterized protein	Unknown
DMR23:2525401	FAM76A	100232402	23	2514050	ENSTGUG00000000951	family with sequence similarity 76 - member A	Unknown
DMR24:1935801	NA	100227293	24	1915428	ENSTGUG00000000375	Uncharacterized protein	Unknown
DMR26:3370501	RAP1A	100151697	26	3158273	ENSTGUG00000001456	Taeniopygia guttata RAP1A - member of RAS oncogene family (RAP1A) - mRNA	Signaling
DMR26:4774101	NA	NA	26	4749296	ENSTGUG00000001836	Uncharacterized protein	Unknown
DMR27:3371401	TLK2	NA	27	3357401	ENSTGUG00000003073	tousled-like kinase 2	Signaling
DMR28:538701	NA	NA	28	507677	ENSTGUG00000000077	Uncharacterized protein	Unknown
DMRZ:8349501	NA	NA	Z	8261519	ENSTGUG00000000475	Uncharacterized protein	Unknown
DMRZ:33485401	SETBP1	100228402	Z	33303203	ENSTGUG00000001615	SET binding protein 1	Transcription
DMRZ:39662301	NA	NA	Z	39660746	ENSTGUG00000001811	Uncharacterized protein	Unknown
DMRZ:46606301	FST	100226154	Z	46604913	ENSTGUG00000002425	folliculin	Growth Factor
DMRZ:49883001	IPO11	100222001	Z	49853180	ENSTGUG00000002759	importin 11	Transport
DMRZ:66310201	FCHO2	100218413	Z	66303495	ENSTGUG00000005780	FCH domain only 2	Cytoskeleton